



## AMS-02 Weekly Activity Report, August 26, 2005

### Upcoming Events:

- USS-02 Extruded Beams Delivery – August 31 and September 7, 2005
- Magnet Meeting – September 12-13, 2005 – Culham, England
- Acoustic and Thermal Vacuum Test Meeting @ ESTEC – September 14, 2005 – Noordwijk, Netherlands
- Thermal Working Group (TWG) TTCS Meetings – September 15-16, 2005 – Amsterdam (or Emmeloord), Netherlands
- AMS-02 Technical Electronics Meeting (TEM) @ CSIST – September 26-30, 2005 – Taiwan
- STA Vacuum Case Delivery (on dock at STADCO) – September 29, 2005 (subject to weld inspection and review)
- AMS-02 Phase II Safety Data Package to the Collaboration for review – October 10, 2005
- AMS-02 General Technical Interchange Meeting (TIM) @ CERN – October 24-28, 2005 – Geneva
- Modal & Static Test Meeting @ IABG – October 31, 2005 – Munich, Germany
- ACOP Critical Design Review (CDR) – November 15, 2005
- ACOP Phase II Safety Review – December 13, 2005
- AMS-02 Phase II Safety Review – Date TBD (Schedule under review) – JSC

### Upcoming Tests:

- Interface Plate Static Test – Date TBD – Location TBD
- Lower Joint Static Test – Date TBD – Location TBD
- STA Sine Sweep Test – January 2006 – INFN, Terni, Italy
- STA Acoustic Test – April 2006 – ESTEC, Noordwijk, Netherlands
- Full Assembly Modal & Static Tests – May 2006 – IABG, Munich, Germany

### General:

- ESCG personnel provided support for a site visit by Bruce Strauss of the Department of Energy (DOE) to view the AMS-02 flight hardware in JSC Bldgs 9 & 10. The AMS Experiment is under the sponsorship of DOE.

### USS-02 and GSE:

- The Vacuum Case Test Fixture (VCTF) tube drawings were revised to add a vent hole. In the original design, a closed volume resulted after the tubes were welded at the next assembly.



#### Vacuum Case:

- ESCG personnel are continuing the ultrasonic inspection of the Structural Test Article (STA) Vacuum Case closeout welds at STADCO. The 0° inspection on the upper weld joint was completed with 300+ indications. The 60° inspection was initiated. When complete, these inspections will be repeated on the lower weld joint.
- Meetings were conducted with Crew and Thermal Systems Division (EC) personnel to determine the thermal blanket size and identify attach points to the Vacuum Case Outer Cylinder. An AMS engineer will work closely with EC to minimize the blanket weight and the number of attach points.
- Work was initiated on the drawings and structural analysis for the Vacuum Case Shipping Fixture cover modifications. As originally designed, the cover sags under its own weight. This means that there is a potential for rain water to pool on the cover if the VC is transported during inclement weather. If left uncorrected, there is a concern that the weight of the water could collapse the cover during shipping operations.

#### Sine Sweep Test:

- Work is continuing on the drawing for the integration of the Vacuum Case to the Vacuum Case Test Fixture (VCTF).

#### Avionics:

- Work is continuing on the design of the IVA ACOP High Rate Data Link (HRDL) data cables, including a part search for cable build-up. All the components are available from the ISS Program. Negotiations are underway to determine how to facilitate the transfer of the needed hardware.

#### Structures:

- The Cryomagnet Avionics Box (CAB) and Wake Radiator shared bolt analysis is in work. All NASTRAN jobs relating to this analysis were submitted August 25th. The expected time of completion for this loads analysis is September 2nd. The analysis results will be post-processed and forwarded onto Carlo Gavazzi Space (CGS) and CRISA for use in their detailed bolt analysis.
- Post-processing of the Lower Support Ring bolts of the Vacuum Case is in work. A determination of whether a gap element analysis is necessary for the Lower Ring will be completed August 26th. The Upper Support Ring NASTRAN runs are in process. Post-processing of the fastener results will begin on September 2nd
- The stress report for the Lower USS-02 Shipping Fixture was updated and submitted to the checker for review. The report will incorporate the current modifications to the shipping fixture. The Lower USS will be raised by four inches using a standoff to



accommodate cable bundles. Analysis on the bolts that mount the standoff is in work. This analysis will be added to the report.

- Two Open Paper Management Tool (OPMT) action items (AMS\_02\_Thermal\_CDR-18 & AMS\_02\_Thermal\_CDR-29) were closed. AMS\_02\_Thermal\_CDR-18 dealt with bi-metallic fittings for the Zenith Radiators. This Review Item Discrepancy (RID) was closed with the action to perform Charpy impact testing for the bimetallic fittings. AMS\_02\_Thermal\_CDR-29 dealt with the need of a tolerance stack-up assessment to ensure that the radiators could be fully assembled. A detailed tolerance assessment was undertaken and agreed upon after a couple of iterations. This will help ensure that the existing design of the TCS will fit properly once assembled.